

What is claimed is:

1. A method for differentiating bone marrow-derived mesenchymal stem cells into steroid hormone-producing cells, comprising stimulating the mesenchymal stem cells by a transcriptional factor (SF-1).

5        2. A method of claim 1 comprising further stimulating the mesenchymal stem cells by cAMP.

3. A method of claim 1 or 2, wherein the mesenchymal stem cells are derived from bone marrow.

4. A method of claim 3, wherein the mesenchymal cells are derived from human.

10       5. A method for producing steroid hormone-producing cells, comprising implementing the method of any one of claims 1 to 4 *in vitro*.

6. A method for producing steroid hormone-producing cells, comprising implementing the method of any one of claims 1 to 4 by transplanting the mesenchymal stem cells into a mammalian reproductive organ.

15       7. Steroid hormone-producing cells obtained by the method of claim 5 or 6.

8. A method for producing steroid hormone, comprising culturing the steroid hormone-producing cells of claim 7 and recovering steroid hormone from the culture medium.

20       9. The method of claim 8, wherein said steroid hormones are progestin, androgen, estrogen, glucocorticoid or mineralcorticoid.

10. Non-human animals carrying the steroid-producing cells of claim 7.